GUIDANCE & REQUIREMENTS for INDEPENDENT TECHNICAL REVIEW (ITR) of *KANSAS CITYS, MO & KS FLOOD DAMAGE REDUCTION PROJECT -- FEASIBILITY STUDY PHASE*

1. DOCUMENT OBJECTIVE. The purpose of this document is to provide guidance and to outline specific requirements for the ITR team.

2. GENERAL INFORMATION.

Study Purpose and Background.
The U.S. Army Corps of Engineers Kansas City District along with local project sponsors, are conducting a feasibility study of the existing flood protection project for the Kansas City metropolitan area. The study is authorized under Section 216 of the 1970 Flood Control Act (review of completed civil works). . The entire metropolitan system of seven flood protection (levee) units withstood the Missouri River Flood of 1993, but some elements of the system were seriously challenged as the flood crest neared overtopping at some locations. This event raised a concern that the levees may provide less than the level of protection for which they were designed.

This feasibility study will update and verify data on the level of flood protection provided by the Kansas Citys, Missouri and Kansas, Local Flood Protection Project, and will develop alternative plans for increasing the reliability of the existing system. Such plans will be technically viable, economically feasible and environmentally acceptable.

Study Authority. Section 216 of the 1970 Flood Control Act provides authority to reexamine completed civil works. Section 216 reads as follows:

> *The Secretary of the Army, acting through the Chief of Engineers, is authorized to review the operation of projects, the construction of which has been completed and which were constructed by the Corps of Engineers in the interest of navigation, flood control, water supply, and related purposes, when found advisable due to the significantly changed physical or economic conditions, and to report thereon to Congress with recommendations on the advisability of modifying structures or their operation, and for improving the quality of the environment in the overall public interest.*

Study Scope. This is a feasibility study of Missouri and Kansas River and the associated protective works within the immediate metropolitan area and vicinity of Kansas City, Missouri and Kansas City, Kansas (termed the Kansas Citys Local Flood Protection Project). Specifically, this study examines the adequacy of the Kansas Citys Local Flood Protection Project authorized by the 1936, 1944, 1946, and 1954 Flood Control Acts. The Kansas Citys project is a unit of the Missouri River basin comprehensive plan. A modification to raise three of the levee units (Armourdale, Argentine, and CID) was authorized by Public Law 87-874 on October 23, 1962. The overall project contains seven official levee units (which can be divided into a total of nine separable units) located along and near the confluence of the Kansas and Missouri Rivers. Engineering, economic, and environmental studies

are underway to evaluate the possibilities of increasing the level of performance of the units within the Kansas Citys Local Protection Project.

Local Sponsorship. The five owner-operators of the Kansas Citys Local Flood Protection Project are listed below. These nonFederal organizations own and maintain the systems with the Corps providing regular inspections and technical review of significant modifications to the system. Financial sponsorship of this feasibility study (cost-shared 50% Fed and 50% Non-Fed) is shared among four sponsors as indicated:

Central Industrial District (MO & KS)	City of Kansas City, Missouri (MO portions) Kaw Valley Drainage District (KS portions)
Armourdale	Kaw Valley Drainage District
Argentine	Kaw Valley Drainage District
Birmingham	Birmingham Drainage District (BDD) (for this study Kansas City, MO is acting for the BDD as financial sponsor)
North Kansas City	North Kansas City Levee District City of Kansas City, Missouri (Airport area only)
Fairfax-Jersey Creek	Fairfax Drainage District (primary owner/operator) Kaw Valley Drainage District (extreme lower end)
East Bottoms	City of Kansas City, Missouri

Description of Existing Overall Project. The Kansas Citys project provides local flood protection for the metropolitan and associated areas of Kansas City, Missouri and Kansas City, Kansas. The protective works consist principally of levees, floodwalls, bridge and approach alterations, and channel improvement and alteration. The project extends over the lower 9.5 miles of the Kansas River and on the Missouri River from 6.5 miles upstream to 9.5 miles downstream of the mouth of the Kansas River. The 32 square mile protected area covers the heavily industrialized floodplains of the two rivers. Each of the seven flood protection units was designed and constructed in coordination with the other, but each is operationally independent. Complete effectiveness of the overall project is contingent on adequate reservoir control in the upper Missouri and Kansas River basins.

The study area includes protected areas within Jackson and Clay Counties, Missouri and Wyandotte County, Kansas. Communities (or portion thereof) within the study area include Kansas City, North Kansas City, Randolph, and Birmingham in Missouri, and Kansas City, Kansas. The seven flood protection units are named as follows: North Kansas City Unit; Central Industrial District Unit; Birmingham Unit; Northeast Industrial District (East Bottoms) Unit; Fairfax/Jersey Creek Unit; Armourdale Unit; and the Argentine Unit.

3. ITR GUIDANCE & REQUIREMENTS.

References:

- Refer to Section 13.12 and Appendix F of ER 1110-2-1150 for USACE guidance on ITR roles and responsibilities.

- Refer to Kansas City District Business Quality Procedure (BQP) 5.5.04 (Quality Plans).

Pertinent excerpts are quoted below:

> *5.6 ITRT Members:*
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> - *Verify compliance with established policy, principles and procedures.*
> - *Verify criteria applied.*
> - *Verify assumptions, methods, procedures, and material used in analyses.*
> - *Evaluate alternatives.*
> - *Verify the appropriateness of data used and level of data obtained.*
> - *Verify completeness of design and documents.*
> - *Verify reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing Corps policy.*
> - *Conduct spot checks for interdisciplinary coordination.*
> - *Identify the specialized knowledge, experience, or training required to competently complete the product.*
> - *Verify comments are resolved by:*
>   - *Verifying incorporation of their comments or,*
>   - *Accepting the verification conducted by e*ither the PM or ITRT Leader or,
>   - Withdrawing the comment.
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> *6.1.7.7.3 Independent Technical Review: Qualified staff verifies the work meets reasonable professional levels and satisfies the client's needs and expectations. For small, simple, low complexity, low risk projects, independent technical review can be accomplished at the section level. Independent technical review can be managed at branch levels when a few disciplines are involved, the project is of moderate cost and complexity and the risk for life safety is relatively low. Independent technical review for all other projects should include individuals who do not have a vested interest in the project and are not involved in the day-to-day direction of the product. The PMP should define the level of independent technical review. Independent technical review is not a detailed check but a broad overview including:*
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> - *Review of criteria applied,*
> - *Review of the methods of analysis and design,*
> - *Compliance with client and/or program requirements,*
> - *Completeness of design and documents,*
> - *Spot checks for interdisciplinary coordination,*
> - *Biddability, constructability, operability and environmental.*
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> *6.1.7.7.4 Independent reviewers are brought on board early on to participate in establishing criteria selection and broad approaches to be taken in addressing potential issues thus ensuring seamless review.*

- Reviewers will be required to use the Dr Checks web-based system for comments. Refer to https://www.projnet.org/projnet/home/version1/index.cfm for additional Dr. Checks access information.

Discipline-Specific Guidance & Requirements. ITR Team representation is required in the disciplines listed below. A statement of qualifications is required for each team member prior to acceptance as an ITR Team member and for any subsequent changes thereto.

Hydrology & Hydraulics: Team member will be an expert in the field of large-river hydrology & hydraulics, have a through understanding of the dynamics of the confluence of two rivers, and be familiar with interior drainage issues related to levee construction. The team member will have an understanding of computer modeling techniques that will be used for this project (HEC-HMS, HEC-RAS, UNET, and TABS).

Structural: Team member will have a thorough understanding of levee , flood wall, and retaining wall design, and structures typically associated with levees (pump stations, gatewell structures, utility penetrations, stoplog & sandbag gaps, and other closure structures).

Mechanical: Team member shall be familiar with levee pump station and closure structure design.

Electrical: Team member(s) shall be familiar with levee pump station and closure structure design.

Geotechnical: Team member will have extensive experience in levee & floodwall design, post-construction evaluation, and rehabilitation.

Economics: Team member will have extensive experience in related projects, and have a thorough understanding of HEC-FDA.

Formulation: Team member will be familiar with current planning and policy guidance, and have experience in plan formulation for large-scale flood damage reduction projects.

Civil / Site / Utilities / Relocations: This requirement may require a dedicated team member, or may be satisfied by structural or geotechnical reviewer, depending on individual qualifications. Team member will have experience in utility relocations and positive closure requirements for levee construction.

Cost Estimating: Team member will be familiar with cost estimating for similar projects using MCACES. Team member will be a Certified Cost Technician, Certified Cost Consultant, or Certified Cost Engineer.

Other disciplines/functions involved in the project include Hazardous/Toxic Waste, Environmental/NEPA, Real Estate, Cultural Resources, and Legal. In each case, any required Independent Technical Review within these disciplines may be accomplished within Kansas City District or by other independent sources. The principles contained in this document also apply to these disciplines/functional areas. *(Exception: Legal review is <u>not</u> be under the purview of the ITR Team Leader but is instead responsible to the Corps of Engineers Ofc of Counsel chain-of-command).*

ITR Team Leader. One member of the ITR Team will act as the team leader. Team leader designation will be finalized based on input from ITR Team members and the CENWK Project Manager, the PDT, and CENWK staff. The ITR leader shall, in addition to discipline-specific requirements, be responsible for:

- Acting as a liaison between the Product Development Team and the ITR Team
- Distributing information for review and coordinating efforts of the ITR Team

- Ensuring that individual ITR Team members are operating within the guidelines established for ITR by ER 1110-2-1150 (esp. see Appendix F).
- The ITR team is not fully geographically co-located. Therefore, it is of paramount importance that the ITR Team Leader be capable of organizing the total ITR efforts across District and Division boundaries.

Site Visit. An initial site visit is required and will be schedule within one year of establishment of the ITR team. This will provide each reviewer with the opportunity to view existing conditions and to meet corresponding Product Development and Peer Review team members.
(NOTE: ITR team site visit accomplished week of July 30, 2001; NEPA/EIS ITR reviewer site visit accomplished week of August 23, 2004)

4. ITR SCHEDULE. The feasibility phase was initiated in September 2000. The Feasibility phase schedule continues to be impacted by the available levels of Federal funding.

- Existing conditions development (less NEPA) was essentially performed during Sep 2000 to May 2003. Existing Conditions ITR (less NEPA) was accomplished during March 2003 through May 2003. NEPA/EIS reviewer (NWO) was brought on-board in July 2003. The NEPA/EIS ITR and the CENWK HTRW ITR will be coordinated with the CELRL review team as needed.

- Current major milestones related to Interim (also termed Phase 1) Feasibility Report product reviews are as follows (subject to change):
  - Sep 04: Complete draft Ph 1 eng appendix and fwd to ITR review (and sponsor review)
  - Oct 04: Pump station resolution meeting (CENWK, CEMVS, CELRL-ITR rep and sponsors)
  - Nov 04: Complete ITR resolution of comments on draft Ph 1 Engineering Appendix
  - Dec 04: Complete draft Ph 1 feasibility rpt, HTRW, Econ, & RE appendices & draft Ph 1 EIS for ITR
  - Jan/Feb: Hold AFB review with NWD, HQUSACE, selected ITR staff, and sponsors.

- Major milestones related to Final (also termed Phase 2) Feasibility Report product reviews are TBD and are highly dependent on Federal and sponsor funding levels for FY05 through FY07.

5. ITR BUDGET. Currently estimated at $50,000 to $100,000 total for the initial site visit, Existing Conditions Submission, Interim Feasibility Report, and Final Feasibility Report reviews and all associated interim coordination and consultations. Budget is highly dependent on the number and quantity of the areas of interest (those areas which are viable candidates for potential Federal project formulation efforts) developed during the feasibility study.

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Kansas Citys Feasibility Phase 1 and Phase 2 ITR Team Organization **Apr07**